Sheet 1 of 12
Express Mail Label No.: EV088615063US
Title: Powder Handling Device for Analytical Instruments
Inventors: Philippe C. Sarrazin and David F. Blake
NASA Case No.: ARC-15101-1
NASA POC; Vickle Kent (650) 604-0887

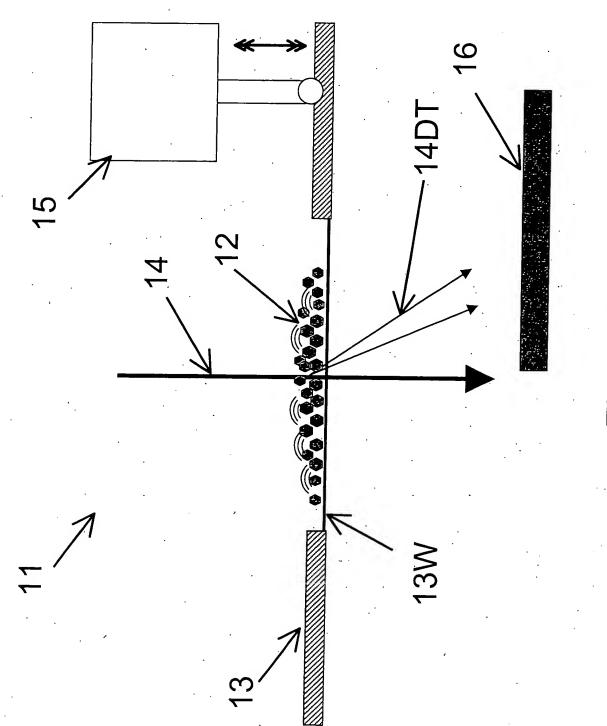
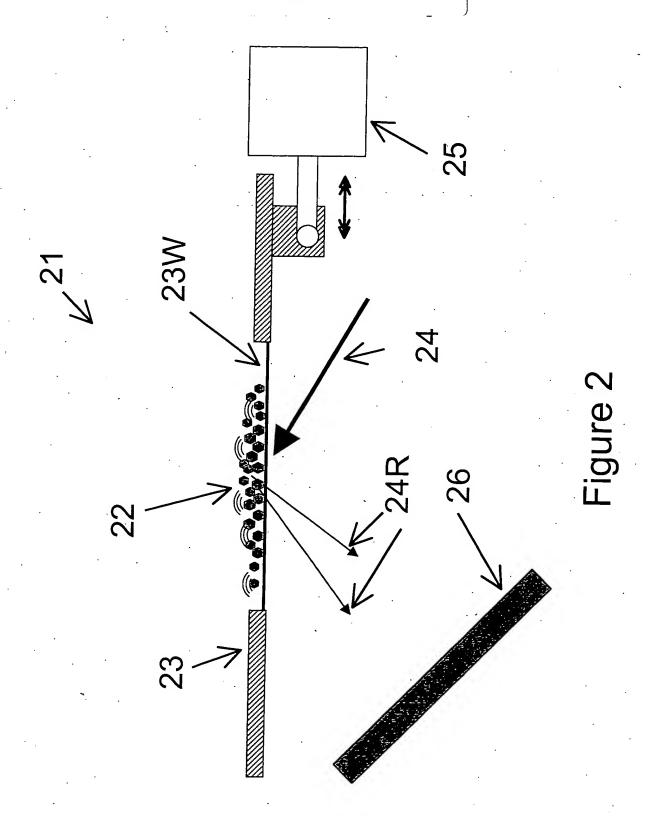
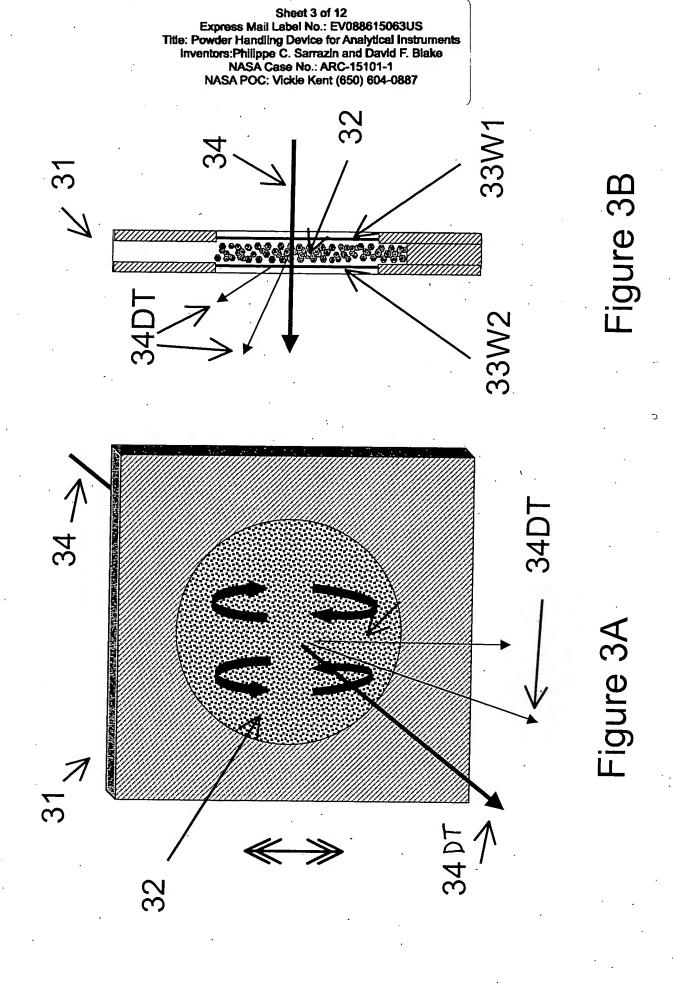


Figure 1

Sheet 2 of 12
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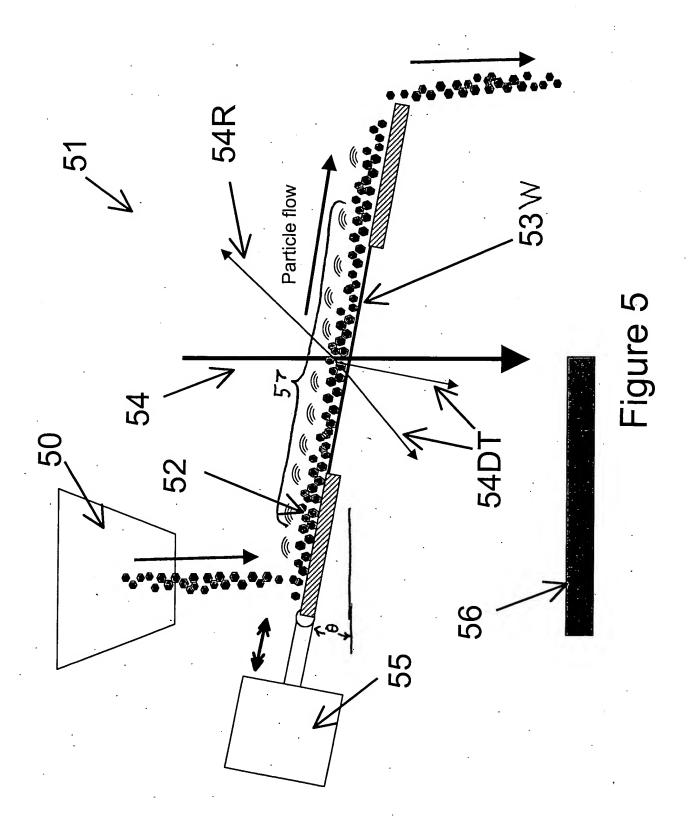


Title: Powder Handling Device for Analytical Instruments Inventors:Philippe C. Sarrazin and David F. Blake NASA Case No.: ARC-15101-1 NASA POC: Vickle Kent (650) 604-0887 40 45 48EN 46 47 43W1 43W2 Particle flow 44DT 48EX 49

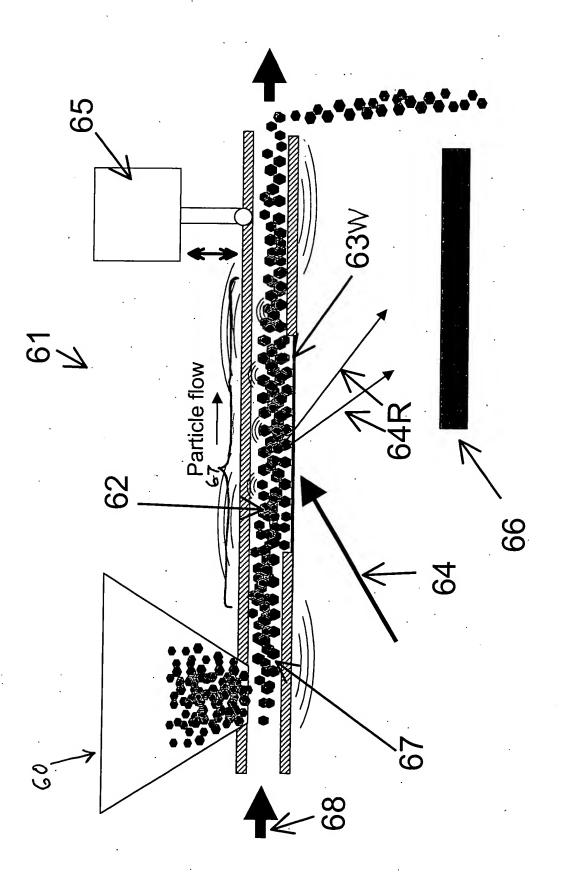
Sheet 4 of 12 Express Mail Label No.: EV088615063US

Figure 4

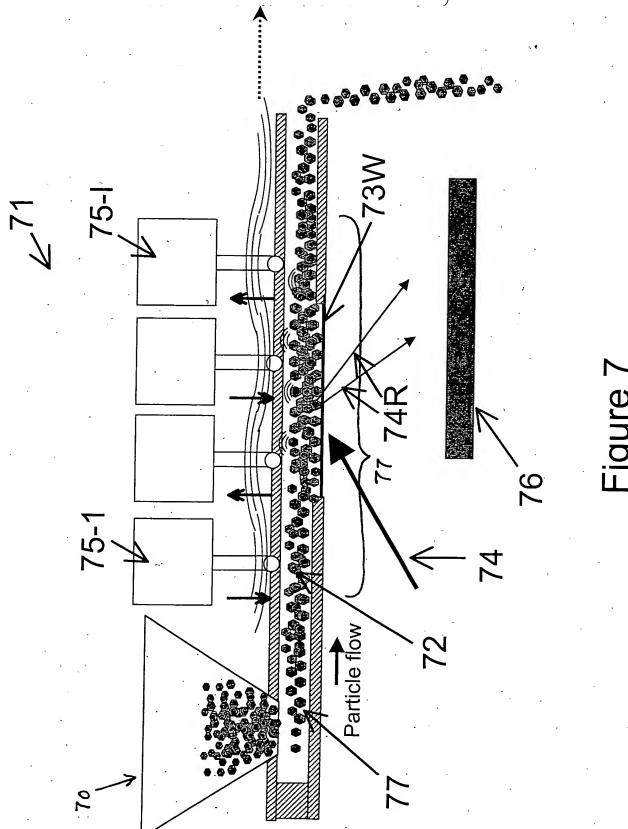
Sheet 5 of 12
Express Mail Label No.: EV088615063US
Title: Powder Handling Device for Analytical Instruments
Inventors:Philippe C. Sarrazin and David F. Blake
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Sheet 6 of 12
Express Mail Label No.: EV088615063US
Title: Powder Handling Device for Analytical Instruments
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NASA POC: Vickie Kent (650) 604-0887



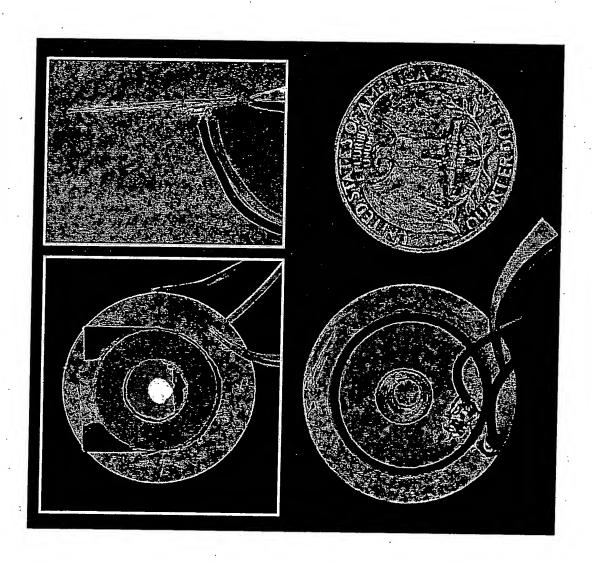
Sheet 7 of 12
Express Mail Label No.: EV088615063US
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Inventors:Philippe C. Sarrazin and David F. Blake
NASA Case No.: ARC-15101-1
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Sheet 8 of 12
Express Mail Label No.: EV088615063US
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Inventors:Philippe C. Sarrazin and David F. Blake
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NASA POC: Vickie Kent (650) 604-0887

83**8**C .82 83**8**B  $\mathbf{3}\hat{a}$ 

## Sheet 9 of 12 Express Mail Label No.: EV088615063US Title: Powder Handling Device for Analytical Instruments Inventors:Philippe C. Sarrazin and David F. Blake NASA Case No.: ARC-15101-1 NASA POC: Vickie Kent (650) 604-0887



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Sheet 10 of 12

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Inventors: Philippe C. Sarrazin and David F. Blake

NASA Case No.: ARC-15101-1
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Provide powder sample in a sample holder having at least one sample holder window that is transparent in a selected wave length region



Cause at least one of the sample, the sample holder and the sample holder window to undergo selected motion at each of one or more selected frequencies



Direct incident light in the selected wavelength region towards a portion of the sample through the sample holder window

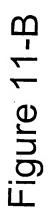


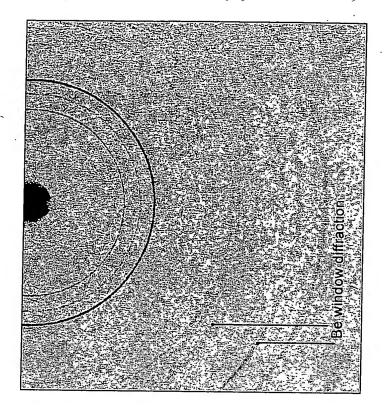
Perform at least one of a diffraction measurement, an absorption or transmission measurement, a reflection measurement and an infrared spectroscopic measurement on the light that has interacted with the sample, at a wavelength determined by a wavelength of the incident light.

## Figure 10

Sheet 11 of 12
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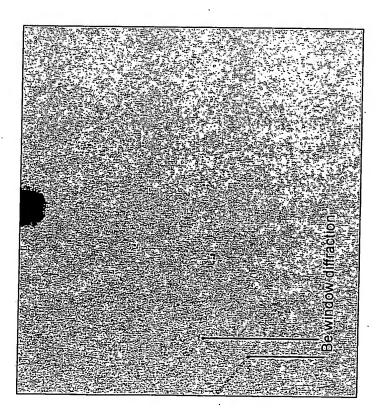


Figure 11-A

Sheet 12 of 12
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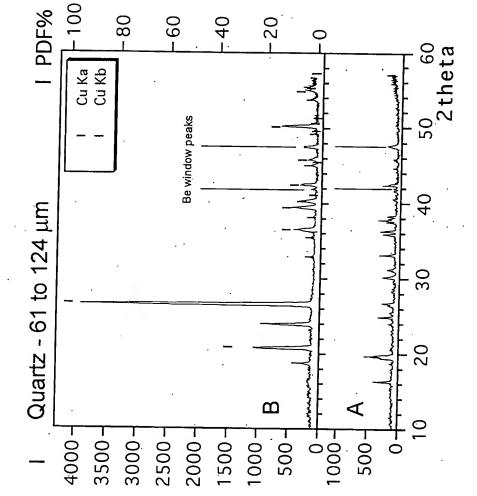


Figure 12